

ABSTRACT

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A novel etching method for preventing spiking and undercutting of an ultra low-k material layer in damascene metallization is described. A region to be contacted is provided in or on a semiconductor substrate. A liner layer is deposited overlying the region to be contacted. An ultra low-k dielectric layer is deposited overlying the liner layer. A damascene opening is etched through the ultra low-k dielectric layer to the liner layer overlying the region to be contacted wherein this etching comprises a high F/C ratio etch chemistry, high power, and low pressure. The liner layer within the damascene opening is etched away to expose the region to be contacted wherein this etching comprises a high F/C ratio etch chemistry, low power, and low pressure to complete formation of a damascene opening in the fabrication of an integrated circuit device.